

# Dimyidae in Japan and Its Adjacent Areas

BY

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(1 Plate; 2 Text figures)

THE DIMYIDAE CONSTITUTE a small family in the bivalves, including only one genus and several existing species, of which two have been reported from Japan, namely, *Dimya radiata* KURODA, 1928 with *D. radiata takii* KURODA, 1928 and *D. lima* BARTSCH, 1913. Recently through the courtesy of Dr. H. A. Rehder of the U. S. National Museum, the writer has received the paratype specimens of two Philippine *Dimya*, *D. filipina* and *D. lima*, both described by BARTSCH in 1913, to be compared with the Japanese forms. After critical observations the writer concludes that *D. radiata* and *D. radiata takii* are synonyms of *D. filipina* BARTSCH and *D. lima* reported by him is a new species, named *D. japonica* herewith and closely allied to *D. molokaia* DALL, BARTSCH & REHDER, 1938.

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## *Dimya* ROUALT, 1848

- 1848 *Dimya* ROUALT, Mem. Soc. Geol. France (2) 3: 470  
(Type species: *Dimya deshayesiana* ROUALT, by M)  
1936 *Dimyarina* IREDALE, Rec. Austr. Mus. 19: 269  
(Type species: *Dimya corrugata* HEDLEY, by OD)

The shell is small, usually ovate to subquadrate in shape, but varies in shape because of the sessile life, pearly white, in some species with brown radial rays and inequivalved. The right valve attaches to the substrata and is larger and deeper than the slightly convex free left valve, and tightly embraces it. The hinge has two crenulated ridges and a small socket between them, in which the internal ligament is situated. The interior is also pearly and has two muscle scars, the anterior being narrowly elongate and the posterior roundly ovate, connecting with a simple pallial line.

Three Japanese and Philippine species are distinguished by the following key:

- Shell attached to the substrate by the broad surface of the right valve, with brown radial rays on the left valve .....  
..... *Dimya filipina* BARTSCH, 1913  
Shell attached to the substrate by the broad surface of the right valve, without brown radial rays on the left valve .....  
..... *Dimya lima* BARTSCH, 1913  
Shell attached to the substrate by the umbonal portion of the right valve, without brown radial rays on the left valve .....  
..... *Dimya japonica* HABE, spec. nov.

## *Dimya filipina* BARTSCH

(Figures 1, 2; Plate Figures 5-8)

- 1913 *Dimya filipina* BARTSCH, Proc. U. S. Nat. Mus. 45: 305; plt. 28, figs. 1-4  
1928 *Dimya radiata* KURODA, Venus 1: 14; plt. 1, fig. 11  
1932 *Dimya radiata takii* KURODA, Venus 3, App.: 111; plt. 53, fig. 1  
1961 *Dimya radiata*, HABE, Col. Illust. Shells Japan 2: 117; plt. 53, fig. 1  
1964 *Dimya radiata*, HABE, Shells West. Pacif. Col. 2: 173; plt. 53, fig. 1  
1965 *Dimya radiata*, HABE, Encycl. Fauna Jap. 2: 236, no. 884

The valves are rather thick, variable in shape depending on the nature of the substrate to which the shell adheres,



Figure 1

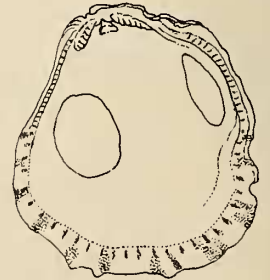


Figure 2

<sup>1</sup> Supported by a grant from the Kaiseikai Science Foundation

but are usually rounded ovate in shape. The upper, left valve is smaller than the lower, right valve, convex and thick, silvery white with brown radial rays of various size and usually marking the coarse lamellated growth lines. The right valve is rather deeply concave, made so by the raised marginal area.

**Holotype:** Height 11.0 mm, length 12.0 mm, and breadth 5.0 mm (right valve); height 9.0 mm, length 10.0 mm and breadth 1.0 mm (left valve).

**Paratype:** Specimen donated by the U. S. National Museum (USNM 246281) and preserved in the National Science Museum, no. NSMT-Mo 37294): Height 10.7 mm, length 10.5 mm and breadth 3.2 mm (right valve) (Plate Figures 7, 8).

Height 8.5 mm, length 8.5 mm, breadth 2.1 mm (right valve of paratype specimen) (Plate Figures 5, 6).

Height 13.8 mm, length 16.2 mm, and breadth 4.1 mm (right valve, collected from Kii Channel between Honshu and Shikoku).

Height 18.0 mm, length 15.0 mm, breadth 6 mm (right valve collected from Tomioka, Amakusa, Kyushu).

Height 15.0 mm, length 18.5 mm (right valve of type specimen of *Dimya radiata* KURODA, attached to *Amusium japonicum*).

Height 21.0 mm, length 22.5 mm (right valve of type specimen of *Dimya radiata takii* KURODA, attached to *Malleus albus*).

**Type locality:** Off Anima Sola Island, the Philippines (Lat. 13°20' N; Long. 123°14'15" E; about 192 m deep).

**Distribution:** Philippines (type locality only) and Japan (Amakusa, Kyushu; Kii Channel and Sagami Bay, Honshu; 20 - 60 m deep).

**Remarks:** *Dimya radiata* is merely a smooth form of this species attaching to the smooth surface of the saucer scallop, *Amusium japonicum* (GMELIN, 1791). *Dimya radiata takii* agrees quite well with the paratype specimens of this species preserved in the National Science Museum of Tokyo.

### *Dimya lima* BARTSCH

(Plate Figures 3, 4)

1913 *Dimya lima* BARTSCH, Proc. U. S. Nat. Mus. 45: 306; pls. 27, 28, figs. 5, 6

The valves are thin, roundly ovate in shape and narrowly erect at the ventral margin, showing a dished appearance, pearly white. The upper, left valve is nearly

flat and possesses weakly marked growth lines; there are many narrow distinct riblets on its surface uniting the surface sculpture of the file shell, *Acesta bartschi* THIELE, 1920 (= *Acesta smithi* BARTSCH, 1913, non SOWERBY, 1888) to which the lower, right valve broadly adheres. The lower, right valve is also flat and very thin at the place of attachment.

Height 13.5 mm, length 15.5 mm (type specimen attached to *Acesta bartschi* THIELE).

Height 17.8 mm, length 18.9 mm, breadth 3.0 mm (conjoined valves of paratype specimen donated by the U. S. National Museum, USNM 256978 and preserved in the National Science Museum, no. NSMT-Mo 37295) (Plate Figure 3).

Height 17.3 mm, length 16.4 mm, breadth 2.7 mm (conjoined valves of paratype specimen collected from off Point Origen, Philippines) (Plate Figure 4).

**Type Locality:** Off Balicasag Island, the Philippines (Lat. 9°27'15" N; Long. 123°31'48" E, about 790 m deep).

**Distribution:** Indonesia (Lat. 5°26'06" S; Long. 132°32'05" E; 397 m deep) and Philippines (about 152 - 790 m deep).

### *Dimya japonica* HABE, spec. nov.

(Plate Figures 9 - 19)

- 1951 *Dimya* sp. HABE, Gen. Jap. Shells 1: 68; figs. 130, 131  
 1958 *Dimya lima*, HABE, Jap. Journ. Malac. (Venus) 19: 178, 182; figs. 7, 8 (non BARTSCH, 1913)  
 1958 *Dimya lima*, HABE, Publ. Seto Mar. Biol. Lab. 6: 262; plt. 11, fig. 21  
 1961 *Dimya lima*, HABE, Col. Illust. Shells Jap. 2: 117; plt. 53, fig. 2  
 1964 *Dimya lima*, HABE, Shells West. Pacif. Col. 2: 173; plt. 53, fig. 2  
 1965 *Dimya lima*, HABE, Encycl. Fauna Jap. 2: 25, 236

The valves are thin but rather solid, pearly white without any colored rays, usually obliquely subquadrate in shape with the dorsal margin straight. The upper, left valve is somewhat convex at the umbonal portion and reflexed and radially wrinkled at the marginal area; the lamellated growth lines are distinctly marked. The lower valve, attached to the substrate by the umbonal portion, is deeply concave, tightly embracing the upper, left valve, and sculptured with the radial wrinkles. The interior of the left valve is smooth and highly polished, pearly white and slightly crenulated at the margin by the radial wrinkles on the outer surface. The anterior muscle scar is narrow and elongate and the posterior is roundly ovate, and the pallial line is situated distant from the margin.



The right valve is also distinctly crenulated at the marginal portion. The hinge has two very weak ridges and a socket between them.

Height 11.4 mm, length 11.9 mm, breadth 2.1 mm (left valve of type specimen preserved in the National Science Museum, NSMT-Mo 37296) (Plate Figures 14, 15).

Height 13.5 mm, length 13.0 mm, breadth 5.3 mm (right valve of paratype specimen preserved in the National Science Museum, NSMT-Mo 38622) (Plate Figure 10).

Height 12.5 mm, length 11.8 mm, breadth 4.4 mm (right valve of paratype specimen preserved in the National Science Museum, NSMT-Mo 38622) (Plate Figure 11).

**Type Locality:** Tomioka, Amakusa, Kumamoto Pref., Kyushu.

**Distribution:** Kyushu, Shikoku and Honshu (north to Boso Peninsula on the Pacific coast and Oga Peninsula, Akita Pref., on the Japan Sea coast), 20 - 600 m deep.

**Remarks:** This new species, attached to the shells of various species, is very common even in the shallow waters in Japan. This is easily recognized by the subquadrate shell with the distinctly straightened dorsal margin and with the rather small umbonal portion for attachment on its right valve. According to Dr. H. A. Rehder (personal communication), this new species has a larger and thinner shell with the more cup-shaped attached right valve than *Dimya molokaia* DALL, BARTSCH & REHDER, 1938. Moreover, the former has the more elongate and narrower anterior adductor muscle scar.

Finally, the Recent species of the genus *Dimya* are listed as follows:

- Dimya argentata* DALL, 1886. Loc. West Indies  
*Dimya californiana* BERRY, 1936. Loc. Gulf of California

*Dimya corrugata* HEDLEY, 1902. Loc. South-Eastern Australia

*Dimya coralliotis* BERRY, 1944. Loc. California

*Dimya filipina* BARTSCH, 1913. Loc. Philippines and Japan

*Dimya japonica* HABE, 1971. Loc. Japan

*Dimya lima* BARTSCH, 1913. Loc. Indonesia and Philippines

*Dimya lima* HABE (non BARTSCH), 1958. Loc. Japan.

This is *Dimya japonica* HABE described herewith.

*Dimya mimula* DALL, BARTSCH & REHDER, 1938. Loc. Hawaii

*Dimya molokaia* DALL, BARTSCH & REHDER, 1938. Loc. Hawaii

*Dimya radiata* KURODA, 1928. Loc. Japan

This is a synonym of *Dimya filipina* BARTSCH

*Dimya radiata takii* KURODA, 1932. Loc. Japan

This is a smooth form of *Dimya filipina* BARTSCH

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## Plate Explanation

Figure 3: Paratype specimen (conjoined valves) of *Dimya lima* BARTSCH (height 17.8 mm; length 18.9 mm; breadth 3.0 mm)

Figure 4: Paratype specimen (left valve) of the same species

(height 17.3 mm; length 16.4 mm; breadth 2.7 mm)

Figures 5, 6: Paratype specimen (right valve) of *Dimya filipina* BARTSCH (height 8.5 mm; length 8.5 mm; breadth 2.1 mm)

Figures 7, 8: Paratype specimen (right valve) of the same species (height 10.7 mm; length 10.5 mm; breadth 3.2 mm)

Figure 9: Paratype specimen (right valve) of *Dimya japonica* spec. nov. (height 12.5 mm; length 11.5 mm; breadth 4.0 mm)

Figure 10: Paratype specimen (right valve) of the same species (height 13.5 mm; length 13.0 mm; breadth 5.3 mm)

Figure 11: Paratype specimen (right valve) of the same species (height 12.5 mm; length 11.8 mm; breadth 4.4 mm)

Figure 12: Paratype specimen (right valve) of the same species (height 12.0 mm; length 12.4 mm; breadth 4.7 mm)

Figure 13: Paratype specimen (right valve) of the same species (height 14.5 mm; length 14.2 mm; breadth 4.3 mm)

Figures 14, 15: Type specimen (left valve) of the same species (height 11.4 mm; length 11.9 mm; breadth 2.1 mm)

Figures 16, 17: Paratype specimens (left valve) of the same species (height 12.2 mm; length 11.4 mm; breadth 2.0 mm)

Figures 18, 19: Paratype specimen (left valve) of the same species (height 11.8 mm; length 11.8 mm; breadth 2.1 mm)